Summary:

During the analysis of the merged dataset consisting of customer information, historical pricing data, and churn indicators, the following key findings were observed.

Dataset Overview:

The merged dataset contains 175,149 rows and 33 columns, providing a comprehensive view of the customer base.

Missing values were identified in columns(**channel sales**, **origin up**) necessitating the need for data cleaning and imputation.

Exploratory Data Analysis:

Numeric variables such as cons_12m, cons_gas_12m, forecast_cons_12m, and pow_max exhibited significant variations, indicating diverse customer consumption patterns and power needs.

Categorical variables like channel sales, origin up, and has gas offered insights into customer characteristics and preferences.

Price Sensitivity and Churn:

Correlation analysis indicated a weak association between price sensitivity and churn, suggesting that price alone may not be the primary driver of customer attrition.

Other factors beyond price, such as customer experience, service quality, or competitive offerings, might play a more substantial role in churn prediction.

To augment the existing dataset and gain deeper insights, the following data sources are recommended:

Customer Interaction Data:

Collect data on customer interactions, including call records, complaint logs, or customer support tickets, to gauge customer satisfaction, identify pain points, and improve service.

Demographic Information:

Obtain additional demographic details such as age, gender, income level, and geographic location to understand the impact of these factors on customer behavior and churn.

Competitor Pricing Data:

Acquire data on competitor pricing in the energy market to evaluate Power Co's position and the effect of price differentials on customer churn.

Usage Pattern Data:

Gather detailed usage pattern data, including daily or hourly energy consumption records, to identify consumption trends, seasonal variations, and potential triggers for churn.

Sentiment Analysis:

Conduct sentiment analysis on social media data or customer reviews related to PowerCo to gain insights into customer sentiment, preferences, and concerns influencing churn.

By incorporating the suggested data sources ,we can enrich the analysis, improve churn prediction models, and gain a more comprehensive understanding of the factors influencing customer churn at PowerCo.